Norton Sound Salmon Fisheries Summary, 2003

A Report to the Alaska Board of Fisheries

By

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Introduction

The Norton Sound-Port Clarence Area is comprised of two fishing districts, the Norton Sound District and the Port Clarence District (Figure 1). Commercial salmon fishing has been prohibited since 1967 in the Port Clarence District to protect the smaller salmon runs exclusively for subsistence. Most subsistence fishing occurs near the villages of Teller and Brevig Mission and in the rivers that can be accessed by road from Nome. There are few subsistence restrictions except for the Pilgrim River drainage (Figure 2). The Norton Sound District is subdivided into six commercial fishing districts. Since the 1990s no commercial fishing has occurred in Subdistrict 1 because of weak salmon runs and no commercial fishing has occurred in Subdistrict 4 because of a lack of market. Commercial fishing occurs in other subdistricts periodically based on salmon run strength and market interest. Most subdistricts have several rivers where subsistence fishing occurs and except for the Nome Subdistrict there are few restrictions (Figure 2).

Commercial Fishery

The 2003 Norton Sound commercial salmon fishery was another poor season. There were no chinook or chum salmon directed fishing periods because of weak runs. The coho run was average in eastern Norton Sound, but very poor in northern Norton Sound.

The commercial fishing season began in late July, one month later than usual, due to weak chinook and chum runs in Norton Sound. The commercial season opened with a 24-hour test fishing period starting on July 31 in the Shaktoolik and Unalakleet Subdistricts and average coho catches allowed the department to open commercial fishing to the regular two 48-hour commercial fishing periods per week in August. There were two fishing periods in September and the fishery closed by regulation on September 8. The combined commercial harvest of all salmon species and the number of commercial permits fished was the second lowest on record. As a result, the 2003 fishery value to the fishers of $64,473 was the third lowest on record since the 1960s. This summary should be considered preliminary and will be updated with additions and corrections in subsequent reports.

Table 1 lists the Norton Sound salmon historical and current year commercial harvests relative to the recent 5-year (1998-2002) and the recent 10-year (1993-2002) averages. The coho salmon harvest of 17,058 was 21% below the recent 5-year average, and 58% below the recent 10-year average. There was no buyer for pink salmon in 2003 as odd-numbered years tend to be much weaker than even-numbered years and the buyer needed a forecast of 500,000 or greater before they would be interested. There were no chinook or chum salmon directed periods and harvest of these species was incidental during the coho fishery. The chum salmon run to eastern Norton Sound was below average, but the run was much better than the chum salmon run in northern Norton Sound. The tail end of the chum run showed surprising strength in both the commercial fishery and the Unalakleet River test net as catches for both were well above average in August. The chum salmon commercial harvest of 3,560 was 58% below the 5-year average and 82% below the 10-year

average. The low harvest of 20,646 salmon can be attributed to low salmon runs and low participation by permit holders. Only 30 permit holders participated in the commercial fishery and only 2002 had a lower participation when only 12 permit holders fished. The previous 5-year average was 57 permits fished and the previous 10-year average was 85 permits fished.

Only one salmon buyer operated in Norton Sound during the 2003 season. The Unalakleet fish plant operated by Norton Sound Seafood Products was the base of commercial fisheries operations. Salmon were both delivered to the Unalakleet dock and tendered from the neighboring Shaktoolik Subdistrict.

The average price paid for chinook salmon was $.64 per pound, $.45/lb for sockeye, $.44/lb for coho, and $.14/lb for chum salmon (Table 2). The total value of the raw fish reported on fish tickets in 2003 was $64,473.25. This was 49% below the recent 5-year average and 77% below the 10-year average (Table 3).

Subsistence Fishery

Household subsistence surveys will be partially funded by the Commercial Fisheries Division and implemented by the Division of Subsistence during the Fall of 2003 in Norton Sound villages. This information will be available in later reports. Table 4 lists historical subsistence harvests in the Norton Sound Area for those years in which surveys were conducted.

The 2003 salmon run was poor and there were various closures to fishing in all subdistricts of Norton Sound, except for Norton Bay and Moses Point, at some time during the season. Closures in Norton Sound were mostly because of poor runs of chinook, chum and coho salmon in certain areas. The pink salmon run came back much better than expected for an odd-numbered year. In the Port Clarence District the Pilgrim and Kuzitrin Rivers were closed to coho salmon fishing because of a weak run. A record run of sockeye salmon passed the Pilgrim River weir into Salmon Lake this past season.

In the Norton Sound-Port Clarence Area only the Pilgrim River drainage in the Port Clarence District and the Nome Subdistrict in the Norton Sound District require subsistence fishing permits for each household that fishes in these locations. These permits identify the type of gear used, and the bag limit, which is specific to that body of water. In addition, the permit contains a catch calendar where the permit holder records catches in numbers of each species of fish for each day fished. If the subsistence fishers have filled their harvest limit in one river they can fish in another river. The limit in marine waters of the Nome Subdistrict is 200 salmon per year of which no more than 50 can be chum salmon. Fresh water limits vary by river in the Nome Subdistrict. In the Pilgrim River drainage the harvest limit is 50 salmon. These permits are important to management because they identify users and harvest limits, but the actual catch information can not be compiled until well after the season when the permits are returned to the Department of Fish and Game. Therefore, this information will also be presented in a later report.

Season Summary By Subdistrict

Nome - Subdistrict 1

The commercial salmon season in the Nome Subdistrict is scheduled to take place by regulation between July 1 and August 31. However, at the January 2001 Board of Fisheries meeting, commercial fishing for chum salmon was closed and will be reopened only after the harvestable surplus of chum salmon has met Tier I subsistence needs for four consecutive years. There was no commercial salmon harvest due to inadequate surpluses of pink, and coho salmon.

In 2003, there were 47 applications for a Tier II chum salmon permit. After scoring the applications a subsistence priority went to thirty households who applied and qualified for the limited Tier II permits based on fishing history, dependence, and the projected harvestable surplus. After the first week a number of applicants still had not fished and another 10 households were allowed to pick up permits. The intent was to allow Tier II permit holder's the first priority over other subsistence users should only a small harvestable surplus of chum salmon develop. The department had concerns that run of 2003 would be poor, based on the poor run in 1999 when Tier II fishing was closed.

As normal, subsistence fishing was closed by emergency order, in mid-June, prior to the beginning of the chum salmon run to all Tier I fishers and Tier II fishers. One change this year was that the Nome River was closed to all fishing as it was not expected to achieve the escapement goal for chum or pink salmon. The Nome River remained closed to all fishing until early August. Tier II fishing was only allowed in marine waters east of Cape Nome for three days per week beginning on June 24. The Board of Fisheries intended to allow more fishing time to Tier II permit holders early in the season when weather conditions are typically more suitable for processing salmon using traditional methods. The Board's intent was to limit the number of fishers, thereby reducing the risk of overharvest early in the run before it could be fully assessed. The chum salmon run to the Nome Subdistrict was poor, and after the third weekly marine water opening to Tier II permit holders, it was obvious that the escapement goal range of 23,000 to 35,000 chum salmon would not be reached and fishing was closed in mid-July until coho season in August.

The subdistrict reopened in both marine and fresh waters to all Tier I and Tier II fishers on August 2 to target coho salmon. However, the Nome River remained closed an additional week to all fishing to protect late arriving chum salmon. The coho salmon return was initially believed to be late, but later was assessed as very poor. In mid-August, the Nome Subdistrict was closed to subsistence and sport coho salmon fishing through September.

During the 2003 season, 38 Tier II permits and 114 Tier I subsistence fishing permits were issued. Some individuals were issued both permit types and multiple permits for different fishing locations. Harvest results for the 2003 subsistence fishing season will be available in a future report.

Golovin - Subdistrict 2

The 2003 Salmon Management Plan stated that the Golovin Bay Subdistrict commercial harvest would be limited to a maximum of 15,000 chum salmon before mid-July in an attempt to protect chum salmon stocks and allow for some harvest while flesh quality is at its best. By that date, the chum salmon run could be assessed and fishing time adjusted accordingly.

However, there was no commercial chum fishing in Subdistrict 2 as chum salmon runs to the south had been very poor and it was questionable whether chum escapement goals would be reached in the subdistrict. The marine waters of Subdistrict 2 and the Niukluk and Fish Rivers drainages were closed to subsistence chum salmon fishing in mid-July because of a weak chum salmon run. The pink salmon run was strong for an odd-numbered year and beach seining for pinks was allowed to continue. In August, coho escapements were first thought to be late, but by mid-month it was obviously the run was extremely poor and subsistence and sport salmon fishing for coho salmon in Subdistrict 2 was closed until October.

Moses Point - Subdistrict 3

The Moses Point Subdistrict chum salmon return has been experiencing below average runs despite conservative management actions taken over the last ten years. At the Board of Fisheries meeting in January 2001, the escapement goals for the Kwiniuk and Tubutulik Rivers were revised to account for recent Biological Escapement Goal (BEG) analysis. The Board established an Optimal Escapement Goal (OEG) for each river that was lower than previous escapement goal. The previous escapement goal range for the Kwiniuk River was 15,600 to 31,200 chum salmon and the revised optimal escapement goal range is 11,500 to 23,000 chum salmon. In 2003, the escapement past the Kwiniuk tower was 744 chinook salmon, 12,123 chum salmon, 22,329 pink salmon, and 5,490 coho salmon. Except for chinook salmon, all escapements were below average. There was no commercial fishing in Subdistrict 3.

Norton Bay - Subdistrict 4

The Norton Bay Subdistrict typically has difficulty attracting a buyer due to its remoteness and its reputation for watermarked fish. Consequently, regulatory changes were implemented that moved the western boundary from Six Mile Point to Isaac's Point in 1995 and the eastern boundary out to Point Dexter in 1998 in an attempt to improve fish quality. Due to lack of timely salmon escapement information, the Norton Bay Subdistrict is typically managed similar to the Shaktoolik and Unalakleet Subdistricts because they reflect similar trends in salmon return strength and timing. In 2003, no commercial salmon fishing occurred due to marginal salmon runs and a lack of buyer interest.

Shaktoolik and Unalakleet - Subdistricts 5 and 6

Both the Shaktoolik and Unalakleet Subdistricts, which share a common boundary, consistently attract commercial markets due to larger volumes of fish and better transportation services. Management actions typically encompass both subdistricts because salmon tend to intermingle and the harvest in one subdistrict affects the movement of fish in the adjacent subdistrict. The department's test net in the Unalakleet River, the North River counting tower and subsistence interviews at Unalakleet are used to set early fishing periods in both subdistricts. As the season progresses, test net catches, commercial catch indices, and the North River counting tower which is operated in cooperation with the Unalakleet IRA, are used to assess run strength of each salmon species. Aerial surveys are frequently not obtained in either subdistrict due to poor survey conditions and are only useful for late season escapement assessment because of the long travel time between the fishery and the spawning grounds (Table 5).

Commercial fishing is typically only allowed after chinook salmon have been observed entering the Unalakleet River in increasing numbers for a week's time to assure the harvest is directed on actively migrating stock and not on milling fish. In 2003, the chinook salmon run was very weak as determined by subsistence net catches, test net catches, tower counts, and aerial surveys. The chum run, although not as weak as the chinook run, was also well below average. As a result there were no chinook or chum salmon directed commercial fishing periods. In addition, concerns with both the chinook and chum runs resulted in the Unalakleet and Shaktoolik River drainages being closed to all gillnetting for most of July. Beach seining was allowed for pink salmon as the pink run was unusually strong for an odd-numbered year.

On July 31, both subdistricts opened with a test period reduced to 24 hours duration compared to the normal 48 hour duration for coho salmon. Harvests of coho salmon were average and the regular schedule of two 48-hour fishing periods per week occurred throughout the month of August. There were two fishing periods in September and the fishery closed by regulation on September 8.

The 2003 commercial catches in the Shaktoolik Subdistrict included 2 chinook, 4,031 coho, and 485 chum salmon harvested by 10 permit holders. The coho salmon harvest was 17% above the recent 5-year average, but 51% below the recent 10-year average.

The Unalakleet Subdistrict total commercial catch harvested by 20 permit holders included 10 chinook, 16 sockeye, 13,027 coho, and 3,075 chum salmon. The coho salmon harvest was 19% below the recent 5-year average and 55% below the recent 10-year average.

Escapement

Table 5 summarizes escapement assessments for the major index river systems of the Norton Sound and Port Clarence Districts in 2003. Most of the chum salmon assessments are described relative to a Sustainable Escapement Goal (SEG) for an index area. An SEG is a level of escapement that is known to provide for sustained yields over a 5-to-10 year period, and is used in situations where a Biological Escapement Goal (BEG) cannot be estimated due to the absence of a stock specific catch

estimate. A BEG is based on spawner-recruit relationships estimated to provide maximum sustained yield. The more formalized BEG has been established for the Nome Subdistrict chum salmon stock. SEGs have been established for seven of the nine individual streams in the Nome Subdistrict based on the historical average proportion of each stream's contribution to the composite Nome Subdistrict chum salmon escapement. These SEGs are in expanded aerial survey counts. BEGs have also been established for the chum salmon stocks that return to the Kwiniuk and Tubutulik rivers. In addition, at the January 2001 meeting the Board of Fisheries established Optimal Escapement Goals (OEG) for the Eldorado, Nome, Snake, Kwiniuk, and Tubutulik rivers in the Norton Sound District. An OEG is a specific management objective for escapement that considers biological and allocative factors and may differ from the SEG or BEG.

Department escapement projects in Norton Sound include counting towers on the Kwiniuk and Niukluk Rivers, a test net operated on the Unalakleet River, and a weir on the Nome River. Norton Sound Economic Development Corporation (NSEDC) provides essential support for these projects. Both the Unalakleet test net and the Kwiniuk tower projects have been in operation for many years. They provide comparable and timely information that is used as a basis for inseason salmon management decisions. The Nome River weir first began as a counting tower project late in 1993 and was operational as a tower in 1994 and 1995 before switching to a functional weir in 1996. The Niukluk tower became operational in 1995. Both the Nome and Niukluk River projects have limited years of data that can be used when making comparisons, but have proven to be reliable and will become more valuable the longer they operate.

Four additional counting projects were also operated in the management area this season. The Snake, Eldorado, and Pilgrim River had weir projects which were setup and operated by Kawerak Corporation and the North River counting tower project was operated by Unalakleet IRA. NSEDC and Bering Sea Fishermen's Association (BSFA) provided essential support to both organizations. These projects have been operational since the mid-1990s and are cooperative ventures with the Department of Fish and Game, which provided technical advice. These projects supplied important daily information to the Department that was very useful to the management of local salmon resources and will become more important the longer they operate.

Aerial survey assessment conditions were fair to good in most subdistricts for the 2003 season. As usual, the Nome Subdistrict streams received the most intensive assessment efforts because salmon stocks local to the Nome area are strictly regulated, easily accessed by road system, and are exposed to intensive subsistence and sport fishing pressure.

MANAGEMENT ISSUES

Chinook Salmon

In Norton Sound, only the eastern area has sizable runs of chinook salmon, and rivers in the Unalakleet and Shaktoolik Subdistricts are the primary chinook salmon producers in Norton Sound. However, the last several years the runs to eastern Norton Sound have been poor. In 2000 and 2001 there were only two commercial openings each year because of weak runs and in 2002 and 2003 there were no commercial openings because of run strength concerns. Additionally, subsistence fishing with gillnets in the Unalakleet and Shaktoolik Rivers was closed for several weeks to protect chinook salmon in 2003. Aerial surveys of chinook salmon were incomplete in 2003 because of poor conditions in eastern Norton Sound, but the North River counting tower has reached the low end of the escapement goal range in the last several years. The escapement of chinook past the Kwiniuk and Niukluk River towers, although much lower than rivers in eastern Norton Sound, have reached the escapement goal range the past several years. There is a market available if commercial fishing is allowed in the future. In recent years commercial catches have been less than 1,000 chinook salmon (Figure 3).

Coho Salmon

Coho salmon are found in nearly all of the chum salmon producing streams throughout Norton Sound with the primary commercial contributors being the Unalakleet and Shaktoolik Rivers. In the early 2000s the coho salmon run began to have poor returns and there were increasing restrictions of fishing in some areas. In most years the even-numbered years have produced greater runs than odd-numbered years. The northern Norton Sound rivers had very poor coho salmon runs in 2003, and there were subsistence closures for several weeks in the Golovin and Nome Subdistrict rivers and some rivers in the Port Clarence Area. Aerial surveys are often difficult during coho season as weather is inclement and streams tend to have higher water. However, in 2003 conditions were favorable for surveying in a number of areas. In the Unalakleet River the cumulative test net catch was average. An aerial survey of the Kwiniuk River indicated that escapement had been reached, but an aerial survey of Niukluk River indicated that escapement was well below the escapement goal range. Escapement counts at Nome, Eldorado, Snake, Niukluk, and Pilgrim Rivers were the worst on record for most projects. There is a commercial market for coho salmon and catches average 20,000 to 40,000 in the last five to ten years (Figure 4).

Chum Salmon

Chum salmon stocks have been depressed throughout Norton Sound for over ten years with the escapements in the northern subdistricts continuing to be a major concern. Declining salmon markets have become significant factors for consideration when scheduling fishing periods (Figure 5). In the late 1990s and in the early 2000s there was little interest in chum salmon as buyers focused on chinook and coho salmon, and pink salmon in even-numbered years. Chum salmon escapement goals were often reached in all subdistricts, except for the Nome Subdistrict. However, overall the chum salmon runs have declined greatly since the mid-1990s. In particularly the

northern Norton Sound runs have done poorly for a number of years and eastern Norton Sound runs have done poor recently. In 2003, the Nome Subdistrict had limited Tier II chum salmon fishing before closing until coho season and the Golovin Subdistrict was closed to subsistence gillnet fishing for several weeks to protect chum salmon. Also, the Unalakleet and Shaktoolik Rivers were closed for several weeks to subsistence gillnet fishing to protect chum salmon. If runs rebound there is a commercial market available for chum salmon although declining prices have resulted in a number of permit holders expressing little interest in fishing for chum salmon. Subsistence restrictions are expected to remain in the Nome Subdistrict for several years (Figure 6).

Pink Salmon

During recent years, pink salmon returns to Norton Sound have followed an odd/even year cycle with even-numbered year returns typically much higher in abundance than odd-numbered years. In 2003, escapements were highly variable with some rivers having extremely high returns compared to the historical average and other rivers having very low returns when compared to the historical average. After the 2000 season, there has been little market interest in pink salmon. The lone salmon buyer in Norton Sound has not expressed an interest in pink salmon unless the harvest forecast is greater than 500,000 pink salmon. Since 2000, the forecast has been under this amount and hence there has been no market. Although the 2004 projection is above 500,000, the actual harvest will be dependent on fishing effort. Once again with low salmon prices there may be little interest from permit holders to target pink salmon.

Sockeye Salmon

Sockeye salmon are typically found in small numbers throughout Norton Sound with the largest spawning stock in the Norton Sound District at Glacial Lake where approximately 1,000 to 2,000 fish return to spawn each year. The Port Clarence District has had a spawning population near 10,000 fish in recent years at Salmon Lake. No commercial fisheries occur on these stocks because of their low abundance and importance to subsistence users. In 2003 there was a record return to Salmon Lake of 42,729 sockeye salmon. The large return of sockeye salmon allowed many subsistence fishers in the Nome Subdistrict to go to the Port Clarence Area to harvest fish.

2004 OUTLOOK

Salmon outlooks and harvest projections for the 2004 salmon season are based on qualitative assessments of parent year escapements, subjective determinations of freshwater overwintering and ocean survival, and in the case of the commercial fishery, the projections of local market conditions. The chinook run is expected to be below average, but subsistence restrictions are not expected. Commercial fishing for chinook salmon in the Unalakleet and Shaktoolik Subdistricts is unlikely, but there will likely be one or two periods in the Moses Point Subdistrict. The chinook salmon harvest will likely be 100 – 1,000 fish. Chum salmon runs are also expected to be below average, but commercial fishing is expected in the Moses Point and Golovin Subdistricts. There may also be commercial fishing periods in the Unalakleet and Shaktoolik Subdistricts. The chum salmon harvest is expected to be between 10,000 – 20,000 fish. The only

expected subsistence restrictions for chum salmon will be in the Nome Subdistrict. However, the chum salmon run is expected to be much better than in 2003 and there is expected to be Tier I fishing periods allowed for chum salmon east of Cape Nome and in the Eldorado and Flambeau Rivers. A pink salmon market is undetermined at this time. The pink salmon run is expected to be above average and if there is an active fishery the harvest could be 500,000-600,000 fish. A commercial fishery will be dependent on both buyer interest and permit holder participation. The coho salmon run in 2004 is expected to be average. The commercial harvest is expected to be 20,000 to 40,000 fish and no subsistence fishing restrictions are expected.

Table 1. Commercial salmon catches by species, Norton Sound District, 1961-2003.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1961	5,300	35	13,807	34,327	48,332	101,801
1962	7,286	18	9,156	33,187	182,784	232,431
1963	6,613	71	16,765	55,625	154,789	233,863
1964	2,018	126	98	13,567	148,862	164,671
1965	1,449	30	2,030	220	36,795	40,524
1966	1,553	14	5,755	12,778	80,245	100,345
1967	1,804	-	2,379	28,879	41,756	74,818
1968	1,045	-	6,885	71,179	45,300	124,409
1969	2,392	-	6,836	86,949	82,795	178,972
1970	1,853	-	4,423	64,908	107,034	178,218
1971	2,593	-	3,127	4,895	131,362	141,977
1972	2,938	-	454	45,182	100,920	149,494
1973	1,918	-	9,282	46,499	119,098	176,797
1974	2,951	-	2,092	148,519	162,267	315,829
1975	2,393	2	4,593	32,388	212,485	251,861
1976	2,243	11	6,934	87,916	95,956	193,060
1977	4,500	5	3,690	48,675	200,455	257,325
1978	9,819	12	7,335	325,503	189,279	531,948
1979	10,706	57	31,438	167,411	140,789	350,401
1980	6,311	40	29,842	227,352	180,792	444,337
1981	7,929	56	31,562	232,479	169,708	441,734
1982	5,892	10	91,690	230,281	183,335	511,208
1983	10,308	27	49,735	76,913	319,437	456,420
1984	8,455	6	67,875	119,381	146,442	342,159
1985	19,491	166	21,968	3,647	134,928	180,200
1986	6,395	233	35,600	41,260	146,912	230,400
1987	7,080	207	24,279	2,260	102,457	136,283
1988	4,096	1,252	37,214	74,604	107,966	225,132
1989	5,707	265	44,091	123	42,625	92,811
1990	8,895	434	56,712	501	65,123	131,665
1991	6,068	203	63,647	0	86,871	156,789
1992	4,541	296	105,418	6,284	83,394	199,933
1993	8,972	279	43,283	157,574	53,562	263,670
1994	5,285	80	102,140	982,389	18,290	1,108,184
1995	8,860	128	47,862	81,644	42,898	181,392
1996	4,984	1	68,206	487,441	10,609	571,241
1997	12,573	161	32,284	20	34,103	79,141
1998	7,429	7	29,623	588,013	16,324	641,396
1999	2,508	0	12,662	0	7,881	23,051
2000	752	14	44,409	166,548	6,150	217,873
2001	213	44	19,492	0	11,100	30,849
2002	5	1	1,759	0	600	2,365
2003	12	16	17,058	0	3,560	20,646
Previous 5-Yr Avg [a]	2,181	13	21,589		8,411	183,187
Previous 10-Yr Avg [b]	5,158	72	40,172	47,848	20,152	311,916

[a] 1998-2002

[b] 1993-2002; odd years only for pink salmon

Table 2. Norton Sound salmon dollar value and average price paid to the fishers, by species, 2003.

Species	Dollar value	Average price per pound
Chinook	$87.20	$0.64
Sockeye	$54.10	$0.45
Coho	$61,043.70	$0.44
Chum	$3,288.25	$0.14
Total Value	$64,473.25	

Table 3. Dollar estimates of Norton Sound District commercial salmon fishery, 1961 - 2003.

Year	Gross Value of Catch to Fishermen	Wages Earned [b]	License and Tax Revenues to State (License Fees Only)
1961	[a]	[a]	$2,010.00
1962	$105,800.00	[a]	$16,341.00
1963	$104,000.00	[a]	$18,009.00
1964	$51,000.00	[a]	$11,305.00
1965	$21,483.00	[a]	$5,084.00
1966	$68,000.00	[a]	$4,680.00
1967	$44,038.00	$58,000.00	$3,500.00
1968	$63,700.00	[a]	$4,000.00
1969	$95,297.00	$72,145.00	[a]
1970	$99,019.00	$55,100.00	$5,595.00
1971	$101,000.00	$65,500.00	$5,730.00
1972	$102,225.00	$68,700.00	$7,000.00
1973	$308,740.00	$81,000.00	$15,400.00
1974	$437,127.00	$129,600.00	$20,028.00
1975	$413,255.00	$172,800.00	$28,230.00
1976	$285,283.00	[a]	$10,133.00
1977	$546,010.00	[a]	$11,386.00
1978	$907,330.00	[a]	$12,002.00
1979	$878,792.00	[a]	$11,780.00
1980	$572,125.00	[a]	$11,640.00
1981	$761,658.00	[a]	$11,940.00
1982	$1,069,723.00	[a]	$7,155.00
1983	$946,232.00	[a]	$10,700.00
1984	$738,064.00	[a]	$9,690.00
1985	$818,477.00	[a]	$5,820.00
1986	$546,452.00	[a]	$5,970.00
1987	$517,894.00	[a]	$5,940.00
1988	$760,641.00	[a]	$10,050.00
1989	$319,489.00	[a]	$10,300.00
1990	$474,064.00	[a]	$10,350.00
1991	$413,479.00	[a]	$10,250.00
1992	$463,616.00	[a]	$10,200.00
1993	$368,723.00	[a]	$8,835.00
1994	$863,060.00	[a]	$10,000.00
1995	$356,164.00	[a]	$5,250.00
1996	$292,264.00	[a]	$4,300.00
1997	$326,618.00	[a]	$5,100.00
1998	$351,410.00	[a]	$4,100.00
1999	$82,638.00	[a]	[a]
2000	$143,621.00	[a]	[a]
2001	$56,921.00	[a]	[a]
2002	$2,941.00	[a]	[a]
2003	$64,473.25	[a]	[a]

[a] Information not available.

[b] Includes wages paid to tender boat operators, processing plant employees in district.

[c] Includes only permit renewals and vessel license fees.

[d] The Alaska state legislature lowered all resident permit renewal fees and vessel license fees to poverty level fees for 1982.

[e] Includes only permit renewal fees.

[f] The Alaska state legislature raised resident permit renewal fee to $50.00 in 1988.

Table 4. Subsistence salmon catches by species, Norton Sound District, 1963-2003.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1963	5	-	118	16,607	17,635	34,365
1964	565	-	2,567	9,225	12,486	24,843
1965	574	-	4,812	19,131	30,772	55,289
1966	269	-	2,210	14,335	21,873	38,687
1967	817	-	1,222	17,516	22,724	42,279
1968	237	-	2,391	36,912	11,661	51,201
1969	436	-	2,191	18,562	15,615	36,804
1970	561	-	4,675	26,127	22,763	54,126
1971	1,026	197	4,097	10,863	21,618	37,801
1972	804	93	2,319	14,158	13,873	31,247
1973	392	-	520	14,770	7,185	22,867
1974	420	-	1,064	16,426	3,958	21,868
1975	186	11	192	15,803	8,113	24,305
1976	203	-	1,004	18,048	7,718	26,973
1977	846	-	2,530	14,296	26,607	44,279
1978	1,211	-	2,981	35,281	12,257	51,730
1979	747	-	8,487	25,247	11,975	46,456
1980	1,397	-	8,625	63,778	19,622	93,422
1981	2,021	38	13,416	28,741	32,866	77,082
1982	1,011	8	14,612	54,249	18,580	88,460
1983						
1984						
1985	Subsistence surveys were not conducted from 1983 through 1993. Surveys conducted					
1986	beginning in 1994 used several diifferent methods and data is not comparable with					
1987	surveys conducted previously.					
1988						
1989						
	Stebbins and St Michaels were included in subsistence surveys beginning in 1994.					
1990	Catch calendars were sent to subsistence fishers to better track the susbsistence catches					
1991	and help the department better estimate the catch of each salmon species.					
1992						
1993						
1994	7,374	1,161	22,124	71,066	25,020	126,745
1995	7,766	1,222	23,015	38,594	43,014	113,611
1996	7,255	1,182	26,304	64,724	34,585	134,050
1997	8,998	1,892	16,476	27,200	26,803	81,369
1998	8,295	1,214	19,007	51,933	20,032	100,481
1999	6,144	1,177	14,342	20,017	19,398	61,078
2000	4,149	682	17,062	38,308	17,283	77,484
2001	5,576	767	14,543	30,253	20,210	71,349
2002	5,469	763	15,086	64,354	17,817	103,489
2003			Data not yet available.			
Previous 5-Yr Avg [a]	5,927	921	16,008		18,948	82,776
Previous 9-Yr Avg [b]	6,781	1,118	18,662	29,916	24,907	96,628

[a] 1998-2002

[b] 1994-2002; odd years only for pink salmon

Table 5. Salmon counts of Norton Sound rivers in 2003 and associated salmon escapement goal ranges (SEG, BEG or OEG).

Stream Name	Chinook				Chum			
	Weir/ Tower Count	Escapement Goal Range	Aerial Survey Count [a]	Escapement Goal Range	Weir/ Tower Count	Escapement Goal Range	Aerial Survey Count [a]	Escapement Goal Range
Salmon L.								
Grand Central R.								
Pilgrim R.	1,016		242		15,192		292	
Glacial L.					2			
Sinuk R.						4,000 - 6,200 [b]	677	
Cripple R.							46	
Penny R.							9	
Snake R.	50		4		2,197	1,600 - 2,500 [c]	440	
Nome R.	12		3		1,957	2,900 - 4,300 [c]	888	
Flambeau R.						4,100 - 6,300 [b]	647	
Eldorado R.	29		12		3,589	6,000 - 9,200 [c]	1,257	
Bonanza R.			5			2,300 - 3,400 [b]	140	
Solomon R.			1			1,100 - 1,600 [b]	73	
Fish R.			95	Combined			3,200	Combined
Boston Cr.			145	100 - 250			750	23,200 - 46,400
Niukluk R.	179		55		20,018		2,315	
Ophir Cr.								
Kwiniuk R.	744	300 - 550	63		12,123	11,500 - 23,000 [d]	4,567	
Tubutulik R.			50			9,200 - 18,400 [b, d]	1,352	
Inglutalik R								
Pikmiktalik R	345				7,707			
Shaktoolik R. [e]			15	400 - 800				
Unalakeet R.			168	Combined			657	Combined
Old Woman R.				550 - 1,100				2,400 - 4,800
North R.	1,452	1,200 - 2,400	131		9,859		222	

-Continued-

Table 5. (Page 2 of 2)

Stream Name	Coho			Sockeye			Pink		
	Weir/ Tower Count	Aerial Survey Count [a]	Escapement Goal Range	Weir/ Tower Count	Aerial Survey Count [a]	Escapement Goal Range	Weir/ Tower Count	Escapement Goal Range	Aerial Survey Count [a]
Salmon L.					19,275	Combined			
Grand Central R.					1,015	4,000 - 8,000			
Pilgrim R.	677	127		42,729	4,336		14,100		195
Glacial L.				2,004	865	800 - 1,600			
Sinuk R.		190			300				9,885
Cripple R.		69							1,175
Penny R.		26							80
Snake R.	489	313		82	2		2,829		298
Nome R.	548	604		50			11,402	13,000	2,841
Flambeau R.		71							355
Eldorado R.	115	71					173		821
Bonanza R.		100							1,540
Solomon R.		105							157
Fish R.									1,014
Boston Cr.									701
Niukluk R.	1,282	146	Combined				75,855	8,400	272
Ophir Cr.		0	950 - 1,900						
Kwiniuk R.	5,490	760	650-1,300				23,329	12,500	390
Tubutulik R.		292							60
Inglutalik R									
Pikmiktalik R	87						13,165		
Shaktoolik R.								48,000 [b]	
Unalakeet R.									1,867
Old Woman R.									
North R.	5,837		550-1,100				280,212	8,500	11,010

[a] All aerial surveys are rated fair to good, unless otherwise noted.

[b] The goal listed is actual fish and not aerial counts. However, at this time there is no counting project on the river.

[c] The Board of Fisheries also established an OEG with the same range as the BEG.

[d] This represents the OEG in regulation. The BEG is 10,000-20,000 for the Kwiniuk River and 8,000-16,000 for the Tubutulik River.

[e] Poor survey conditions.

FIGURES

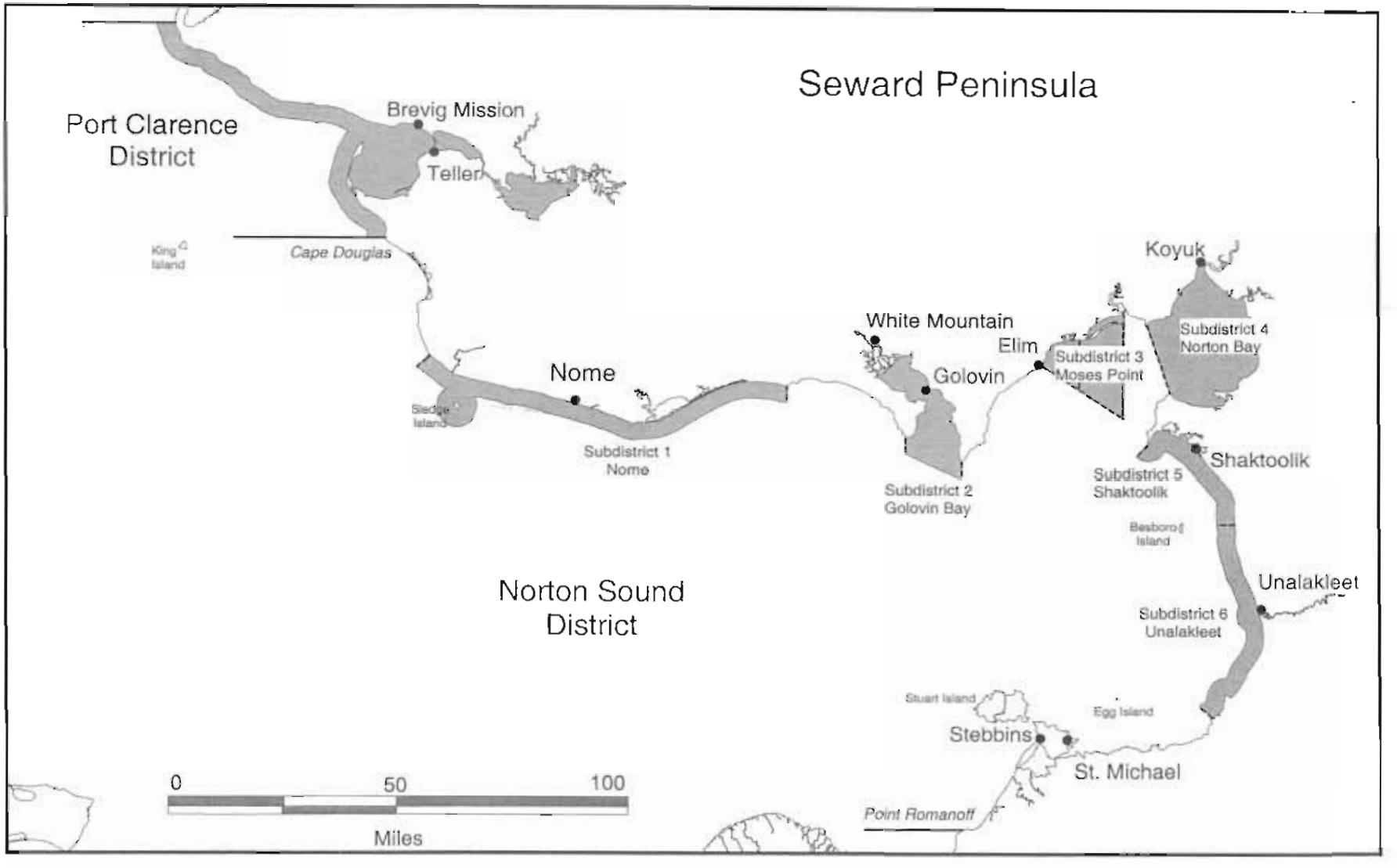

Figure 1. The commercial salmon fishing districts and subdistricts of Norton Sound and Port Clarence.

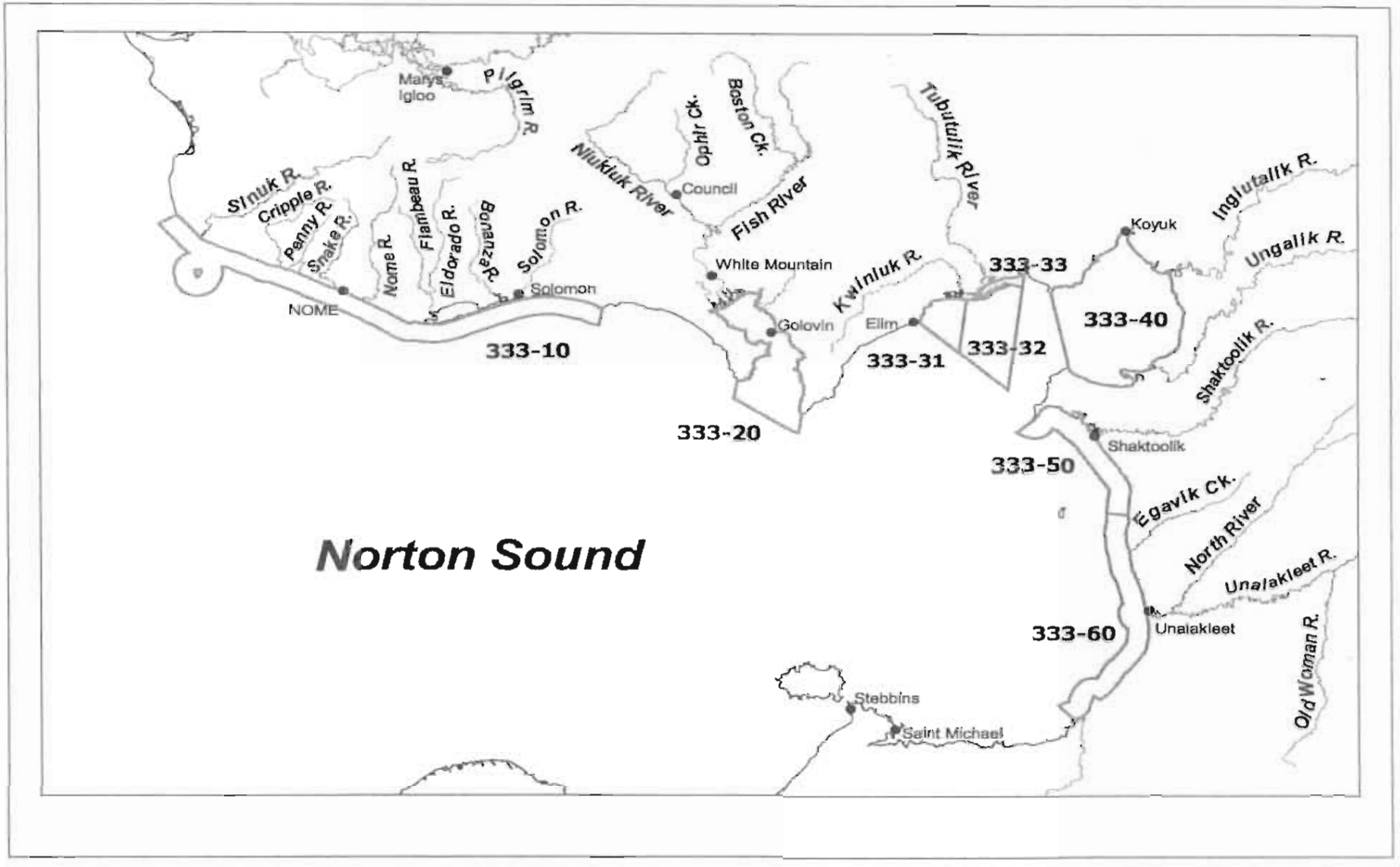

Figure 2. The commercial salmon fishing subdistricts and rivers of Norton Sound.

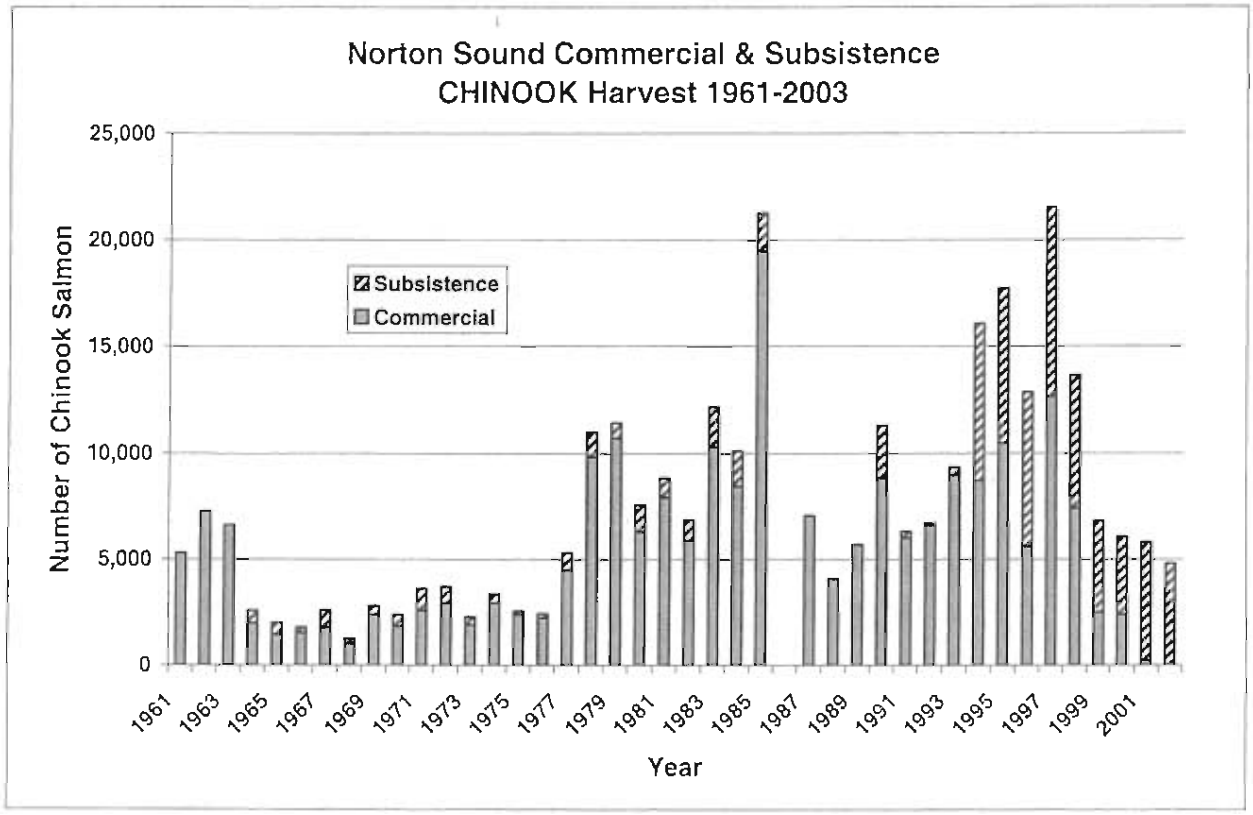

Figure 3. Historical chinook salmon harvest in Norton Sound.

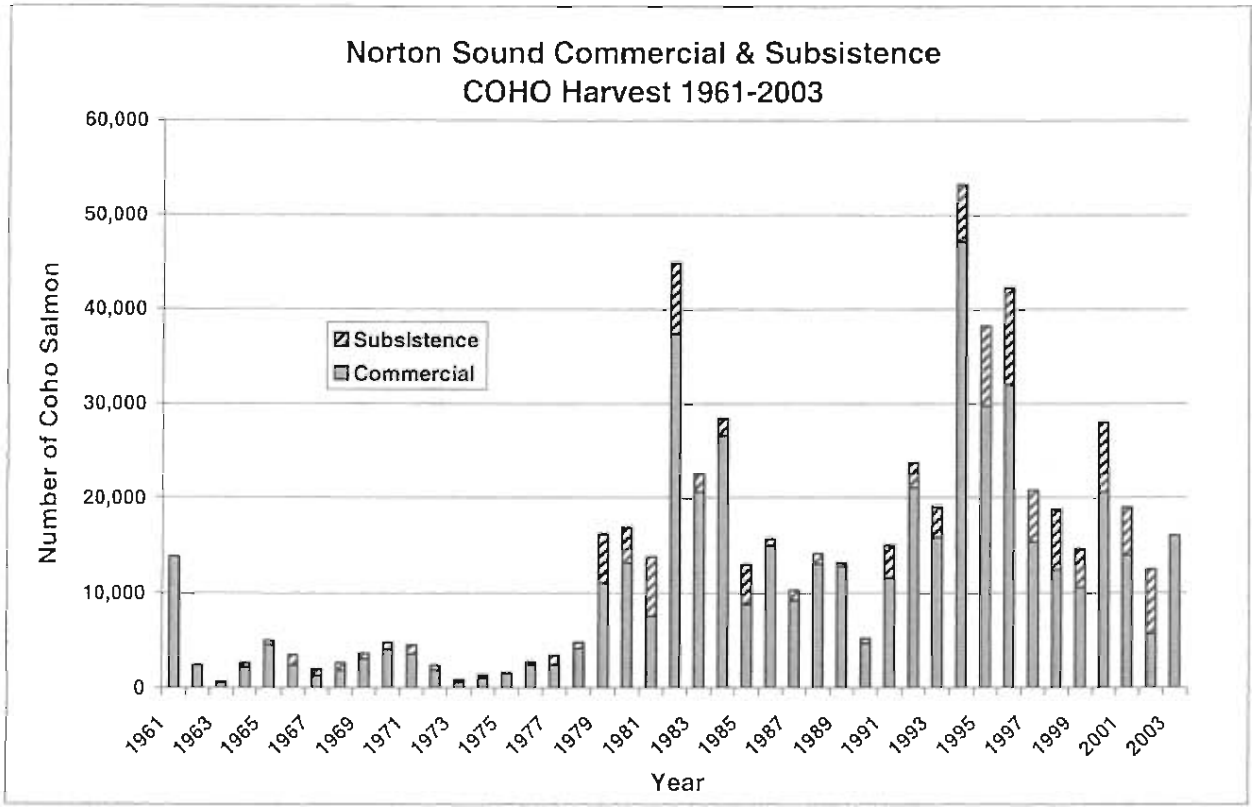

Figure 4. Historical coho salmon harvest in Norton Sound.

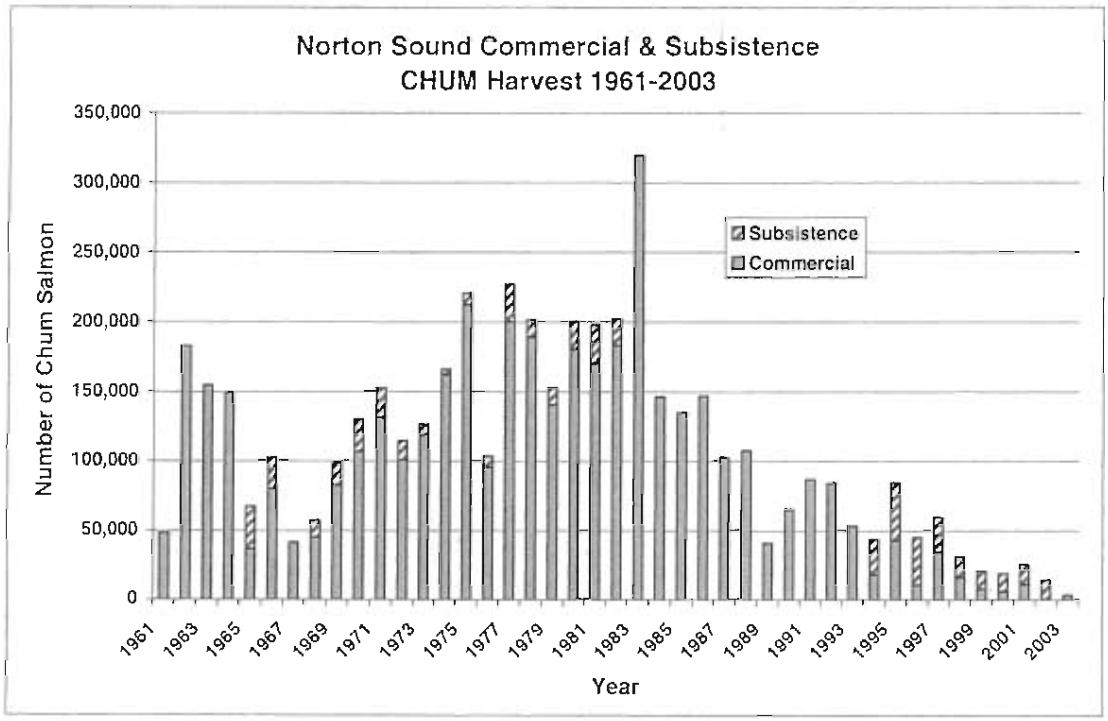

Figure 5. Historical chum salmon harvest in Norton Sound.

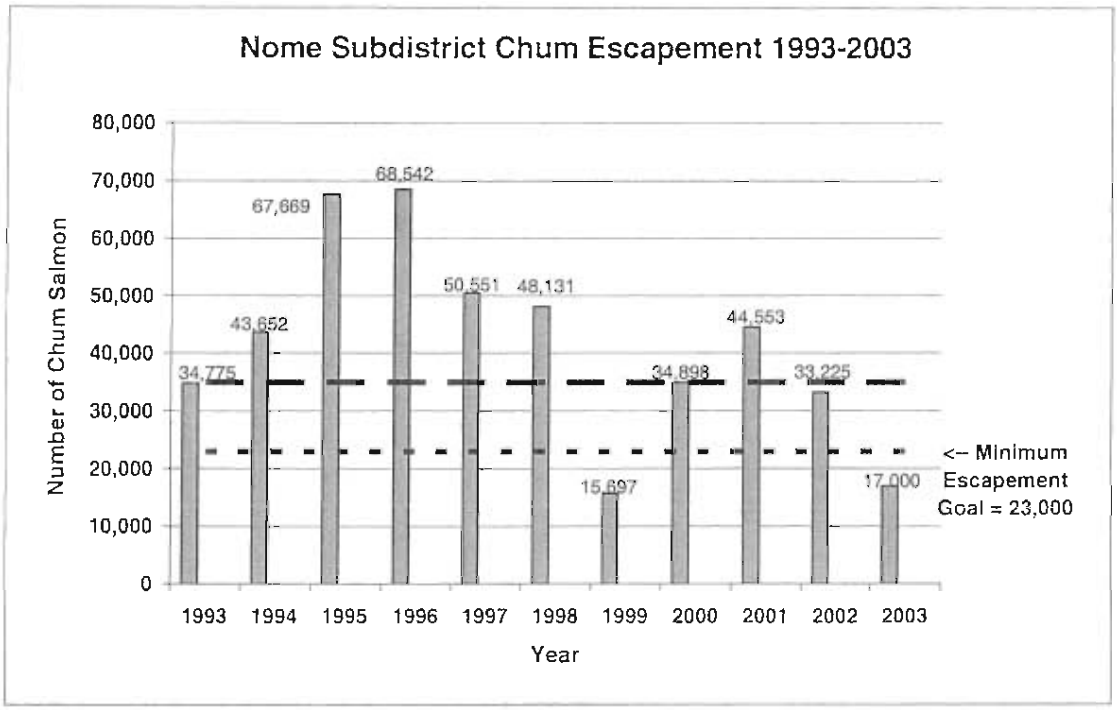

Figure 6. Historical chum salmon harvest in Nome Subdistrict.